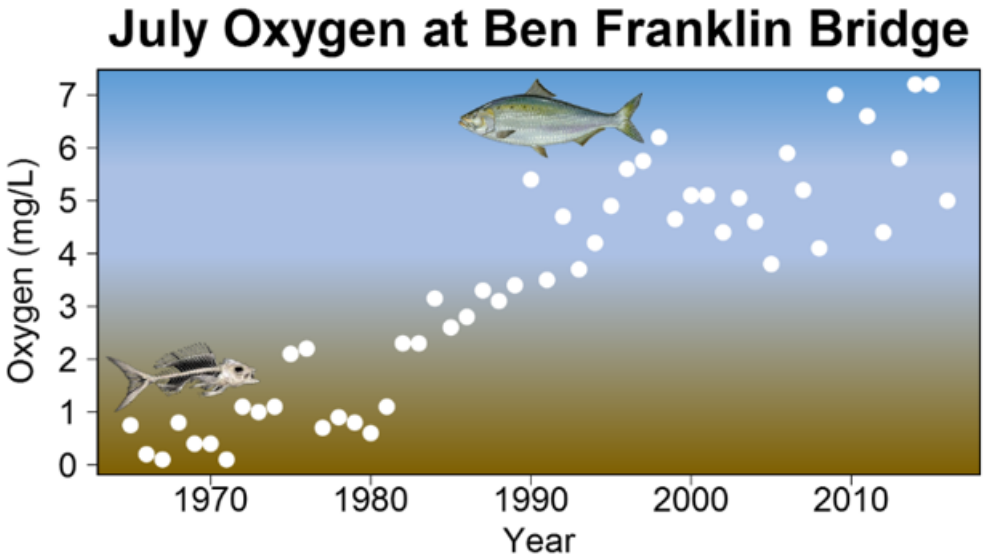
Delaware River Basin Commission
DELAWARE • NEW JERSEY
PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

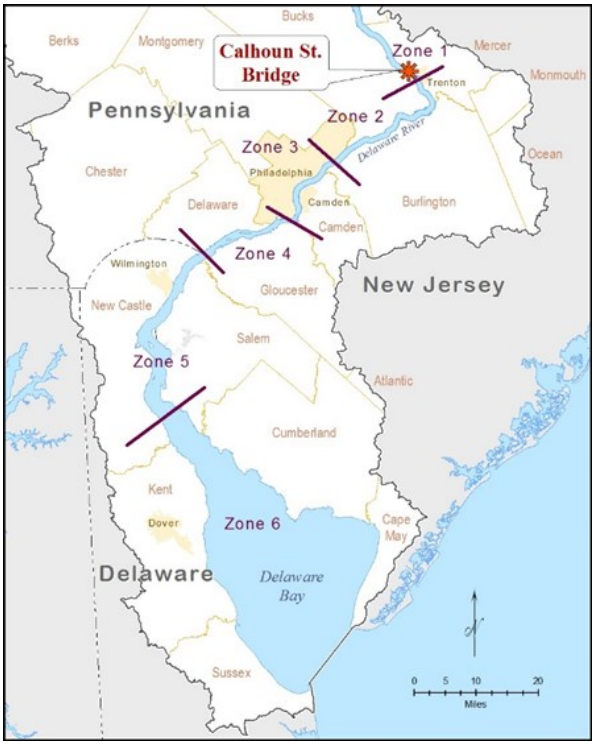
Monitoring Oxygen Shows Improvement in Water Quality

Oxygen in water is essential to the reproduction and growth of fish and other aquatic life. Oxygen enters water both from the air and as a by-product of photosynthesis from algae and aquatic plants, but it can be depleted by discharges from wastewater treatment plants and decay of vegetation.

The Delaware Estuary has historically been plagued by too little oxygen resulting from the discharge of raw and poorly treated wastewater.



In 1961, when the DRBC was created, little or no oxygen was present during warm months in a 30-mile reach of the Delaware Estuary from Wilmington to Philadelphia, preventing the survival of resident fish and the passage of migratory fish. Steady improvement in estuary oxygen levels occurred throughout the 1970's and 1980's due to effective water quality management by DRBC, the federal government and the basin states, as well as substantial investment in wastewater treatment facilities by public entities and private industry. Shad can now migrate from the ocean to the upper portions of the basin, and striped bass and sturgeon are now able to spawn at least some of the time in the estuary. However, continued low oxygen levels at times remain a critical barrier to full aquatic life health.



DRBC is in the process of developing a water quality model that will help to inform us on how to achieve higher levels of oxygen in the Delaware Estuary. Water quality data must be collected in order to develop this model. Monitoring of wastewater treatment facilities, tributaries, non-point sources, and atmospheric deposition are either initiated or envisioned for the next two years. Since the Delaware River at Trenton is the largest source of freshwater to the estuary, we need to accurately measure the loads of nutrients, such as nitrogen and phosphorus coming from this part of the river to better understand the processes that may be affecting oxygen in the estuary.

When this project is completed, DRBC hopes to achieve cleaner water and higher levels of oxygen in the Delaware Estuary, leading to higher and more consistent fish reproduction.